

REMARKS

Claim rejections – 35 U.S.C. 103(a)

Claims 1 – 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bryan C. Chung (hereafter Chung) in view of A. Beverina et al. (hereafter Beverina) and Chin-Ning Wu (hereafter Wu).

Response

Claim 1

Wu teaches that an undesirable extrusion 15 is formed because the P-N junction fabricated in the silicon substrate 10 provides an electrical path for electrochemical reactions. Therefore, excessive copper ions will be deposited on the anode, i.e. the N⁺ region connected with the Cu wiring line [Col. 2, lines 24-28]. In other words, the extrusion 15 is formed due to an **oxidation-reduction reaction** between Cu connected with the P⁺ diffusion region 12 and Cu connected with the N⁺ diffusion region 14 due to different electric potentials.

Wu does not teach the relation between the copper extrusion and light exposure. More explicitly, Wu mentions nothing about light. In addition, Wu teaches applying a diluted H₂O₂ solution on the wafer to oxidize the surface of the exposed Cu wiring line before rinsing the wafer utilizing a cleaning solution such as HF in the wet cleaning step to clean the oxidized copper and other residues [Col. 3 line 66 - Col. 4 line 3].

The instant application teaches that the extrusion 15 is formed due to **light exposure** [Para. 0020]. Beverina also teaches that the corrosion is formed because of electron/hole pairs **photogenerated** in the junction (Beverina, page 158).

Accordingly, the problem Wu identifies and the means Wu takes to solve said problem are totally unrelated to the means disclosed in the instant application and the other prior arts. Therefore, Wu does not provide sufficient motivation for one skilled in the art to combine Wu with Chung and Beverina, as the respective scope of these prior arts are totally unrelated to each other.

The prior art of record neither teaches nor makes obvious the claimed features of

the instant application as a whole as recited in Claim 1. With all these arguments considered, Claim 1 should be patentable over the prior arts.

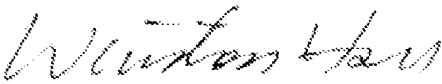
Response

5 Claims 2 – 6

As claims 2 – 6 are dependent upon Claim 1, they should be allowable if Claim 1 is allowed.

10 Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

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Date: 05/29/2008

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